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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,995	05/16/2001	Dmitrii Stepanov	CU-2505-RJS	2237

7590 12/04/2003
Thomas F Peterson
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224 South Michigan Avenue Suite 1200
Chicago, IL 60604

EXAMINER

RODRIGUEZ, ARMANDO

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 12/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/831,995

Applicant(s)

STEPANOV ET AL.

Examiner

Armando Rodriguez

Art Unit

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 69-89 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 69-89 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Paul Ip
PAUL IP
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

The objection to the drawings has been withdrawn in view of the newly submitted drawing of figure 5.

The objection of claims 77,82,83,89 due to minor informalities is withdrawn in view of applicant's amendment filed September 20, 2003.

Regarding the objection of claim 89 under 37 CFR 1.75 double patenting, applicant's arguments on page 8 discloses that claim 8 does not include a distributed feedback laser cavity. Applicant's attention is directed to claim 89, where in the preamble the claim makes reference to a distributed feedback laser cavity, therefore the preamble is essential to point out a particular type of laser, which is the distributed feedback laser, as such the preamble is given the effect of a limitation. See MPEP 2111.02

Regarding applicant's argument on pages 9 and 10 pertaining to the limitation of "reduce power fluctuations" of claims 69,77 and 89. Applicant's attention is directed to column 2 lines 20-25, discloses preventing the deterioration of the coherence of the laser beam, which implies preventing noise or fluctuations of the laser beam. It is not clear based on applicant's argument how the laser cavity is influenced, since no language within the claim implies any type influence within the laser cavity from the wave mixing. The claim limitations only describe "redirecting the signal back towards the laser cavity", which may be interpreted as the signal entering or not entering the laser

cavity, furthermore, Scifres et al discloses a similar configuration, which induce gratings and provide a coherent output beam without noise or fluctuations.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 69-80 and 82-89 are rejected under 35 U.S.C. 102(b) as being anticipated by Scifres et al (PN 5,103,456).

Scifres et al discloses an integrated amplifier laser diode, which can be distributed feedback (DFB) or distributed Bragg reflector (DBR), as described in the abstract.

Regarding claims 69,73,74,77,84,85,88 and 89,

Figure 8 illustrates a laser (11), which can be a DFB laser, a reflector (41R), which reflects the laser beam from laser (11), an amplifying medium (13), which receives both the laser beam and the reflected beam from reflector (41R). The emitted laser beam and the reflected beam provide wave mixing within the amplifying medium (13), which will induce gratings within the medium as a result of the interfering beams. As shown in figure 8 the amplifying medium (13) and the reflector (41R) are both external to the laser cavity (11). Thereby, having similar structural arrangements the phase discriminating properties of the induced gratings are inherent in figure 8.

Regarding claims 70,78,79 and 80,

Figure 8 illustrates an amplifying medium (13) in the optical path of the laser beam emitted by laser (11) and the reflector (41R).

Regarding claims 71,72,82 and 83,

The emitted laser beam and the reflected beam provide wave mixing within the amplifying medium (13), which will induce gratings within the medium as a result of the interfering beams. Thereby, having similar structural arrangements the phase discriminating properties of the induced gratings are inherent.

Regarding claims 75,76,86 and 87,

Figure 8 illustrates the laser cavity (110 having Bragg gratings (14) and (15).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 77,78 and 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scifres et al (PN 5,103,456) in view of Feuer (PN 6,078,597).

Figure 8 illustrates a laser (11), which can be a DFB laser, a reflector (41R), which reflects the laser beam from laser (11), an amplifying medium (13), which receives both the laser beam and the reflected beam from reflector (41R). The emitted laser beam and the reflected beam provide wave mixing within the amplifying medium (13), which will induce gratings within the medium as a result of the interfering beams. As shown in figure 8 the amplifying medium (13) and the reflector (41R) are both

external to the laser cavity (11). Thereby, having similar structural arrangements the phase discriminating properties of the induced gratings are inherent in figure 8. Figure 8 illustrates an amplifying medium (13) in the optical path of the laser beam emitted by laser (11) and the reflector (41R).

Scifres et al does not disclose the laser system formed in an erbium-doped fibre.

Feuer illustrates in figure 6 an erbium doped fiber, which provides induced gratings within the amplifying medium by wave mixing, as disclosed in column 7 lines 53-67.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to from the laser system of Scifres et al into an erbium doped fiber of Feuer because the erbium doped fiber would provide induce gratings within the amplifying medium.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Armando Rodriguez whose telephone number is (703) 308-6218. The examiner can normally be reached on 10-hour day / M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-4881.


Armando Rodriguez
Examiner
Art Unit 2828


Paul Ip
Supervisor
Art Unit 2828

AR/PI